

Negative Experiences on Ecstasy: The Role of Drug, Set and Setting†

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Abstract—Similar to other sociological studies of Ecstasy use, the authors' research suggests that Ecstasy users tend to report positive effects of the drug. However, we also observed that most users experienced at least one adverse psychological outcome while using Ecstasy. The present study examines those negative experiences within the context of drug, set and setting. Data were collected through in-depth interviews with 98 current or former users of Ecstasy. The results indicate that, in general, negative experiences with Ecstasy did not deter people from using the drug again. The findings suggest that most negative experiences with Ecstasy can be attributed to the interaction between two or more factors, nearly always involving set or setting. Although various analyses have shown that the same "brand" of Ecstasy can contain varying degrees of MDMA, other drugs and adulterants, results from the present study suggest that users' expectations of the drug's effects appear to be related to the brand or label of Ecstasy that is consumed. The role of individual disposition in producing negative drug experiences is less clear; it is possible that this factor might interact with user set or friends' set in contributing to the overall drug experience.

Keywords—Ecstasy, MDMA, set, setting

The availability of the MDMA (methylenedioxy-methamphetamine, "Ecstasy") as a street drug is relatively recent, having gained in popularity in the 1980s and 1990s in the United States, Australia, various European countries and elsewhere. As use of the drug has increased in parallel with its public notoriety, a quite polarized debate has emerged with regards to the drugs' effects. Contemporary folklore and much of the sociological literature suggest that

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Ecstasy creates a general feeling of well-being and contentment among users and facilitates social interaction (Henderson 1997; Saunders 1995; Beck & Rosenbaum 1994). Sociological research into Ecstasy use suggests that, generally, users are far more likely to report positive rather than negative effects of the drug (Shewan, Dalgarno & Reith 2000; van de Wijngaart et al. 1999; Beck & Rosenbaum 1994; Solowij, Hall & Lee 1992). Users in this literature typically describe their experiences with the drug as "fun," "loving," and "insightful" (Beck & Rosenbaum 1994: 59).¹ Although the drug is related structurally to amphetamine and may produce mild hallucinations, these effects generally are not characterized by the disorientation or major visual or audio distortions typically associated with other hallucinogens (Beck 1990).

The medical literature on Ecstasy tends towards a rather different emphasis, stressing in particular the negative effects of the drug. For instance, medical research involving reports of heavy, recreational, or first-time Ecstasy users has focused upon negative psychiatric, cognitive, and physical effects, and death after ingestion (see for example, McElhatton et al. 1999; McCann et al. 1998; Ellis et al. 1996; O'Connor 1994; Maxwell, Polkey & Henry 1993; Williams, Meagher & Galligan 1993; McGuire & Fahy 1991; Brown & Osterloh 1987). However, longitudinal and experimental studies of humans are limited, and a heated debate continues with regards to the dangers of Ecstasy (see for example, Betts & Betts 1999; Cohen 1998; Saunders. 1995).

The present research uses data from a qualitative study of Ecstasy users in Northern Ireland. Similar to research conducted elsewhere, the overall study from which the present data are drawn found that the majority of users tended to report positive experiences with the drug (McElrath & McEvoy 1999). Several users, however, reported at least one negative experience with Ecstasy, and these effects are the focus of the present study. In this study the concept of "negative experiences" was limited to those effects that occur shortly after consumption or during the Ecstasy episode. The authors recognize that some users experience difficulties (e.g., depression, irritability, exhaustion, problems with concentration) in the days that follow an Ecstasy episode, and these after-effects have been documented in the literature (McElrath & McEvoy 1999; Parrott & Lasky 1998; Curran & Travill 1997; Beck 1990). The after-effects, however, are not the focus of the present study. The physical sickness (i.e., vomiting) that can occur shortly after consuming the drug has also been excluded. Many users describe this sickness as tolerable (Shewan, Dalgarno & Reith 2000) or in other non-negative terms; the vomiting period generally is brief, and users report that initial vomiting leads quickly to the more pleasurable "coming up" stage (McElrath & McEvoy 1999). Severe physical reactions and symptoms (e.g., liver damage, seizures) also are excluded. For the most part, then, the negative experiences of Ecstasy use explored in the present study refer more generally to adverse psychological effects (e.g., paranoia, severe anxiety, panic attacks, confusion) that occur during use.

FACTORS RELATING TO NEGATIVE EXPERIENCES

The authors believe that a major limitation of much of the medical literature on Ecstasy use concerns its failure to acknowledge the potential importance of social setting and, equally important, what this context means to the individual user. For example, medical research into the effects of Ecstasy tends to link psychiatric and adverse psychological symptoms to the drug only, or to drug combinations. By way of a corrective, the specific focus of this article is to

explore the nature and extent to which set and setting contribute to negative experiences while using Ecstasy. It also examines the possible contribution of other factors as they relate to negative experiences with Ecstasy. These factors include: (1) dosage and frequency of use, (2) polydrug use that occurs during Ecstasy consumption, (3) the brands or types of Ecstasy tablets consumed, and (4) individual disposition. Each of these factors is discussed below.

Set and Setting

Set refers to "the attitude of the person at the time of use" (Zinberg 1984: 5) and incorporates the user's "past experiences (including previous drug experiences), mood, motivations . . . and expectations of the subject" (Jansen 1997: 117). These factors are said to influence the drug experiences for the user.

Setting includes the physical environment and social setting in which Ecstasy is consumed (Jansen 1997; Zinberg 1984). For Ecstasy users who consume in club venues, the physical environment can include the nature of the music, the role of the DJ, as well as safety features such as the availability of water and room temperature. Setting also includes "the set of other people present" (Jansen 1997). For example, the negative mood or experiences of a friend might affect an individual's experiences with the drug.

Dosage and Frequency

Both dosage (i.e., number of tablets) and frequency of use (e.g., weekly) have been linked to negative Ecstasy experiences. For example, Measham, Aldridge and Parker (2001) found that higher dosages of Ecstasy were significantly correlated with mood swings and amnesia. Solowij, Hall and Lee (1992) compared less frequent users (i.e., persons who had used Ecstasy between one and three times over their lifetime) with "multiple time users." Differences in "negative mood" outcomes, and mental and physical side effects were not statistically significant between the two groups. However, actual frequency of use and dosage were both positively correlated with the severity of side effects. Other research has found that the number of lifetime Ecstasy episodes has been linked to a greater likelihood of psychopathological disorders among drug treatment patients (Schifano et al. 1998). In contrast, Measham, Aldridge and Parker (2001) found no significant relationship between the frequency of Ecstasy use and negative psychological effects.

Topp and colleagues (1999) conducted multivariate analyses and identified factors that contributed to adverse physical and psychological effects of Ecstasy. Of relevance for the present study, these authors found that the number of adverse *physical* effects was associated with being female, age (younger), recent bingeing on Ecstasy (defined as using the drug without sleep for 48 hours) and higher dosage. Females and persons who had recently binged on

stimulants reported significantly more adverse *psychological* effects. The authors of this study also noted that the variance explained was lower for the psychological effects model. This finding suggests that factors relating to set and setting might have represented important variables that were omitted from the equation.

Polydrug Use

Regarding polydrug use, Ecstasy users have been widely found to consume other drugs or alcohol during the Ecstasy episode (Measham, Aldridge & Parker 2001; McElrath & McEvoy 1999; Hammersley et al. 1999; Topp et al. 1999; van de Wijngaart et al. 1999).² Polydrug use makes it difficult to disentangle the effects of Ecstasy from the effects of alcohol and other drugs consumed during the same episode. Forsyth (1995) observed: "Such drug interaction may wrongly be attributed by the user only to the Ecstasy tablet." Adverse psychological effects have been linked with recent and extensive polydrug use (Topp et al. 1999). The use of alcohol during Ecstasy consumption also appears to contribute to negative experiences. For example, a study of drug treatment patients found that persons who had consumed Ecstasy with alcohol were significantly more likely than alcohol abstainers to display psychopathological disturbances (Schifano et al. 1998).

Individual Disposition

Medical literature and case reports have identified Ecstasy users who have had a history of psychiatric morbidity prior to their consumption of the drug, or a family history of such problems (Spruit 1997; McCann, Slate & Ricaurte 1996; Williams, Meagher & Galligan 1993; McGuire & Fahy 1991; Schifano 1991). These findings suggest that some users may be predisposed to psychiatric problems prior to drug consumption, and this factor might contribute to negative drug experiences. However, scholars have noted the difficulty in disentangling the causal connection between mental health problems and negative drug experiences (Measham, Aldridge & Parker 2001).

Other authors have suggested the possibility that the positive effects of Ecstasy may be of shorter duration among those persons for whom the drug is metabolized quickly (Winstock & King 1996). Spruit (1997: 18) noted that "anomalous MDMA metabolism" is one factor that might contribute to adverse effects. That is, MDMA appears to accumulate in some users rather than metabolize, an effect that can pose risk to particular users (De La Torre et al. 2000).

"Brands" of Ecstasy

Ecstasy sold in several countries is marketed in tablet form whereby the visible properties (e.g., embossed symbols, color, size, and shape) distinguish one brand from another (Forsyth 1995). Brands are also distinguished by

name or label and these labels can change quickly, even weekly in some cultures (Calafat et al. 1998). This marketing strategy might be traced historically to the labeling of bags of heroin in New York City. Several years ago, Goldstein and colleagues (1984) studied the bag labeling of street heroin in New York City. Their list included approximately 400 different labels for bags of illicit heroin. They noted that bag labeling is helpful to both the consumer and the dealer. For example, the heroin users *believed* that the labels were helpful in locating good quality heroin. Additionally, the labels helped the dealers attract new customers: "Marked bags identify who the dealer is. It gives people an idea of which is the 'best stuff'" (Goldstein et al. 1984: 559). However, "Getting beat on a heroin purchase (i.e., being sold 'dummy' bags) or buying inferior quality heroin is an omnipresent risk" (Goldstein et al. 1984). In fact, "Both the verbal reports of heroin users and actual laboratory analyses of heroin confirm that a given label may contain widely varying qualities of heroin and, in some cases, not contain a legally controlled substance at all" (Goldstein et al. 1984).

An "active" dose of MDMA is approximately 80 mg per tablet (Sherlock et al. 1999). Earlier reports from Britain suggested that purity ranged from 50% to 100% (O'Connor 1994) and that MDMA content ranged from 50 and 150 mg (O'Connor 1994, Henry 1992) with an average of 100 mg (Newcombe 1992). Wolff and colleagues (1995) conducted tests of tablets marketed in various regions of the United Kingdom and found that the MDMA content ranged from zero to 140 mg per tablet. More recent reports suggest that the MDMA content in the region has declined to approximately 30 mg per tablet (Bassline 1998: 20). Sherlock and colleagues (1999) reported that slightly less than half of the 25 "Ecstasy" tablets analyzed contained no MDMA at all. Similarly, a thorough system of tablet testing in the Netherlands has found that about *one-half* of the tablets marketed as Ecstasy contain no MDMA at all (Spruit 1997).

Other ingredients, such as MDMA's "chemical cousins," MDA and/or MDEA, have been found in tablets sold as Ecstasy (Sherlock et al. 1999; Forsyth 1995; Wolff et al. 1995). Ketamine also has been found in tablets sold as Ecstasy (Wolff et al. 1995). Shewan, Dalgarno and King (1996) reported that police seizures of ketamine-laced Ecstasy had increased in Britain since 1993. In the south of England, tablets sold as Ecstasy were in fact compressed magic mushrooms (Ashton 1992). Tablet testing in the United States has found that Ecstasy tablets have contained ephedrine, PCP, amphetamine, methamphetamine and a host of other ingredients (DanceSafe 2000). In their analysis of 107 Ecstasy tablets from various regions within the United States, Baggott and colleagues (2000) observed that 21% of the tablets contained dextromethorphan, a substance that has been linked to drug-induced psychosis.

Other reports have suggested that ingredients of Ecstasy tablets can vary, even for those tablets that are labeled with the same identifier or name (DanceSafe 2000; Sherlock et al. 1999). However, research that examines the ingredients of various brands of Ecstasy is less able to link the brand with a specific source. A brand that is produced from the same batch may indeed contain the same ingredients. Moreover, a symbol or name of a reputable brand of Ecstasy can be "borrowed" from other manufacturers but without providing the same ingredients. For example, the brand Mitsubishi held a "good reputation" in some regions of the United Kingdom, but subsequent batches of the brand were found to be 100% sucrose (<http://www.ecstasy.org/testing/mitslabtest.html>). Interestingly, this strategy also was observed by Goldstein and colleagues (1984) in their study of heroin markets in New York City two decades ago. That is, some heroin dealers reportedly used another's label when that label's reputation was good.

METHODOLOGY

The primary data for this study were collected through face-to-face, in-depth interviews with current and former Ecstasy users in Northern Ireland. The criterion used for interview eligibility was any use of Ecstasy. The authors used this very general criterion and monitored the sample closely throughout the study, knowing that the study criteria could be narrowed at a later date.³ A total of 106 respondents were interviewed; however, eight interviews were discarded because of recording or transcribing problems, leaving a sample size of 98 respondents.

Several methods were used to recruit respondents for interviews. First, announcements of the study were placed in cities, towns and villages throughout Northern Ireland. Venues were chosen which might be described as nonthreatening and which were considered likely to be frequented by the target population, e.g., record or music shops and health centers. Second, advertisements were placed in a Northern Ireland club/music magazine. The ad was published in three monthly issues during the study period. Third, several local organizations were contacted and notified of the study. These agencies were diverse and included youth programs, universities and student unions, sexually transmitted disease clinics, gay men and women outreach programs, young offender programs, and drug counseling or treatment centers. On several occasions, study announcements were sent to agencies by mail, and then followed up with phone calls or visits by the researchers in order to discuss the study in greater detail. Fourth, the interviewers recruited some respondents through their own contacts and street sources. Fifth, the researchers relied upon snowball sampling or "chain referral" techniques (Biernacki & Waldorf 1981) whereby respondents were asked to refer friends and acquaintances. Sixth, in some instances,

"recruiters" or "gatekeepers" were used and paid £10 (US \$16) in cash for each subsequent referral and completed interview. This method, however, was monitored closely and an upper limit of referrals (usually six) from each recruiter was established. This strategy was particularly helpful in those outlying areas where the researchers had few contacts. Clubs were not used as recruitment venues.⁴

Interviews were conducted between October 1997 and November 1998. Four persons, two females and two males, served as interviewers (two of whom were the Project Directors).⁵ A research instrument was developed, piloted on the first 12 respondents and minor revisions were made (these 12 respondents were included in the final sample).

Interviews in Belfast, the largest city in Northern Ireland, generally were conducted in university offices that offered a great deal of privacy, or in other venues convenient to the respondent (e.g., private homes). Interviews with respondents who lived outside of Belfast were conducted in private areas located within community agency sites or in private homes.

Respondents were assured of confidentiality and anonymity, and identified by number only. Study participants were provided with a £15 (US \$24) music or book gift certificate for a completed interview. Interviews were conducted within a one- to two-hour time period and focused on issues related to first, last and usual use of Ecstasy, positive and negative drug experiences, drug use rituals and norms, health issues, and other items. Respondents were encouraged to go beyond the subject area of the research instrument when appropriate. Interviews were taped and subsequently transcribed. Demographic and drug use history data were collected at the conclusion of the in-depth interview.

RESULTS

Description of Respondents

Eighteen percent of the respondents were recruited through snowball sampling, 26% were recruited by one of nine gatekeepers, 29% learned about the research through one of the study's employees, and 27% read an ad that contained information about the study. Characteristics of the sample are reported for descriptive purposes only. One-half of the respondents resided in Belfast at the time of the interview, 46% lived elsewhere in Northern Ireland and 4% resided outside Northern Ireland. Males accounted for approximately two-thirds (69%) of the sample and respondents ages ranged from 17 to 45 years (mean=25; median=24; mode=23). Social class was self-identified; 49% of respondents described themselves as working class, 46% were middle class and 5% of respondents reported being "between" working and middle class. Just over half of the sample (57%) were employed (either part- or full-time).

These sample characteristics are similar to studies conducted elsewhere. For example, in an Australian study of Ecstasy users males comprised 61% of the sample, the mean age was 27 years, and respondents' ages ranged from 16 to 48 years (Solowij, Hall & Lee 1992). In a study of participants in the Glasgow "dance drug scene" (Forsyth 1996: 512), males comprised 62% of the sample, the mean age was 24 (range=14 to 44 years), and 40% of respondents were unemployed.

Findings

Similar to research conducted elsewhere (van de Wijngaart et al. 1999), previously reported findings from these data suggested that positive feelings relating to mood, psychological and emotional well-being were by far the most common descriptions reported by respondents in the overall study (McElrath & McEvoy 1999). However, several users reported at least one negative experience with Ecstasy; yet in most instances, these negative effects did not deter people from consuming the drug again. Indeed, some respondents consumed additional Ecstasy tablets in the same evening and shortly after the negative effects surfaced, in hopes that those effects would subside.⁶ The relationship between these negative experiences and a range of factors is discussed below.

Set and Setting

One objective of the present research was to identify the social setting, conditions and other factors that were present just prior to the consumption of Ecstasy and during the episode itself. In this regard, the following factors were explored: (1) set and setting, (2) the brands or types of Ecstasy tablets that were consumed, (3) polydrug use that occurred during the Ecstasy episode, (4) dosage, and (5) in some cases, individual disposition of the user. The overall results suggest that in a few instances, one factor (e.g., setting) appeared to contribute to negative experiences with Ecstasy, e.g., a forced overnight stay in an unfamiliar house, a club setting without water or a chill-out areas. A few respondents reported that negative feelings subsided after they had left an uncomfortable setting. For some respondents, *set* might have exacerbated the negative experiences, e.g., the realization that "I had taken something really bad." However, the more general pattern observed from these data was that negative experiences occurred most often from the interaction of *two or more* of these factors. These findings are described below.

Set and setting emerged as primary influences for negative experiences. In this sense, however, setting referred more generally to friends' or acquaintances' set, as opposed to the physical environment (e.g., being surrounded by strangers, room temperature). For example, respondents perceived that their interaction with others could contribute to negative experiences with Ecstasy: "I was just sitting

quiet, and [my friends] said, 'You never [are] like this. Will you talk?' [And then] I was getting paranoid thinking there's something wrong with me" (female, age 18).

Similarly, when respondents observed friends experiencing negative effects of Ecstasy, they too began to feel uneasy. A male respondent initiated Ecstasy use with friends in a parked car: my friend . . . he started to feel he was very closed in and started panicking. He had to get out of the car and go for a dander [walk] like and I sort of had a reaction to that because I didn't know what was going on . . . I wasn't used to it but he sort of came round afterwards and he was all right so I was sort of getting on [feeling better]" (male, age 17).

A male respondent described his reaction to a friend's experiences in a club. The friend had stated to the respondent, "I think these are bad Es cause I'm after being sick three times in the toilet". The respondent recalled that the friend's response had the potential for influencing his own experiences: "I don't want to hear it. That freaks you out, when you hear these are bad Es." (male, age 18).

Interactions with "knowledgeable" users who "define" the effects of the drug can contribute greatly to positive drug experiences for others (Becker 1967: 165), particularly among novice users. A female (age 25) recalled the second time that she had used Ecstasy and described that experience as being very positive: "It was apparently a really good E . . . the fellas we were with were saying that it was class [very good] and they'd been doing it for years."

Even during initiation into Ecstasy use, when some persons feel quite nervous about taking the drug, the presence of friends who had used the drug previously can reduce apprehensions about taking Ecstasy. A male respondent recalled that he was very anxious about using Ecstasy after hearing that a young woman in England had died after taking the drug. Despite his anxiety, he consumed the drug for the first time while in the company of friends who had taken the drug before. Those friends had discussed with him what to expect from Ecstasy, and although the effects of the drug for him were minimal, he described the experience as very positive. A 29-year-old male recalled that he had been quite "antidrug" prior to initiating Ecstasy use. He had experimented with other substances, e.g., LSD, but the effects of these other drugs were largely negative for him. At initiation, friends had told him that Ecstasy was not like hallucinogenic drugs. The respondent described his first use of Ecstasy as being very positive.

Some respondents reported that nearly all of their experiences with Ecstasy were negative. These outcomes could be attributed to the interaction between individual disposition and set. That is, some persons might be prone to negative drug experiences for biochemical reasons or may be predisposed to psychological problems that might surface with the consumption of certain drugs. A respondent's *set* then is influenced by these past negative

experiences which, in turn, can influence respondents subsequent experiences with Ecstasy. In a sense, then, the past negative experiences "guide the trip." Further, Weil (1972: 52) suggested that "panic reactions, once they get going, are self-perpetuating." A 21-year old male in the present study had used Ecstasy on approximately 250 different occasions. He reported experiencing hallucinations both during and after several Ecstasy episodes (i.e., flashbacks). These hallucinations lasted approximately 10 to 15 seconds: "Usually . . . I'd be sweating, my heart would be thumping, I'd actually think, 'I'm going to have a heart attack or something here.' It was terrifying. I couldn't even explain what it was like to people. I told a couple of my friends, but it never happened to them. I was wondering why [my friends had not experienced hallucinations] and then I started getting paranoid thinking [that] there's something wrong with me. And then that's when the paranoia comes in."

Negative experiences at initiation do not necessarily deter people from using Ecstasy again. A female respondent reported experiencing acute paranoia during her first use of Ecstasy. She was depressed just prior to using Ecstasy, and had consumed a considerable quantity of alcohol during the episode. These other factors make it difficult to distinguish the role of individual disposition. Since initiation into Ecstasy use, she has periodically experienced negative effects involving paranoia, whereas consuming-friends in her company have had more positive experiences with Ecstasy. Individual disposition in the form of depression might be one factor that contributes to negative drug experiences; however, another possible explanation is that the initial and subsequent negative experiences are firmly "embedded" in her set.

Brands of Ecstasy

Although the present study did not include biochemical assays or tablet testing⁷, respondents were asked their views about the different brands of Ecstasy. Other research has shown that most Ecstasy users consume the drug without concern for its contents (Calafat et al. 1998). In the present study, several respondents believed that the potential effects of Ecstasy could be determined by the brand or label, failing to recognize that differences could occur both within and across batches of the same label. "Say, your 'Superdoves' are your best then your 'Einsteins' then your 'Playboys' or whatever. There's like a priority. There's a list of what are the best, what are the worst and what are the ones which are pretty good . . . you do hear about the kinds of pills to avoid" (male, age 26).

A male respondent reported that his favorite E was a "Double Amsterdam" but noted: "I haven't had a 'Double Amsterdam' in two years because they're impossible to get, because that's a pure one. [It's] equivalent to about 10 [other] Es."

Despite limited use of Ecstasy (i.e., five times over the lifetime), a male respondent (age 18) preferred "Doves" because he knew "exactly what's going to happen":

Interviewer: Why are ["Doves"] better? What's in them?

Respondant: To be honest I couldn't tell you, I've no idea what they cut them with, Jesus, they could cut them with talcum powder for all I know. But all I know is that I think there's more Ecstasy in the "Doves" than in the other ones because I would be as completely blocked [i.e., "wasted"] on half a "Dove" as I would be on a full "Loony Tune."

These reports suggest that respondents might choose a particular brand of Ecstasy because prior experiences with that brand were positive. Such a decision, however, fails to consider that tablet ingredients may differ both *within* and *across* batches of Ecstasy, despite the same label being used. If the effects of a brand of Ecstasy are always the same for a user, such an outcome might result from sheer luck. Alternatively, the *set* of the user with regards to the expectations of the label's effects might contribute to consistent outcomes for a particular brand of Ecstasy.

The perceived type of Ecstasy can interact with setting (i.e., other people's set) and shape the experience for the user: "I've done an E at a club and I talked to someone and I've got a negative response that's brought me way down. But usually that's been the case when the E wasn't particularly good . . . the better the E, the more able you are to dismiss other people's negative response" (male, age 34).

In some instances, however, it appears that the brand itself, or at least the contents of the particular batch, contributes to negative effects, irrespective of set and setting. For example, "Crowns" were widely available in the north of Ireland during January and February of 1998. Although it is not known whether these Crowns surfaced from the same batch (i.e., were made from the same ingredients by one manufacturer),⁸ the vast majority of reports suggested that the Crowns available in the region during this period produced very positive effects. Persons who had used Ecstasy "hundreds" of times described Crowns as "the real McCoy" and the "best E that's been around." The reported dosage varied between one-half and two tablets, and most persons who had reported consuming Crowns during this time period had consumed some alcohol during the Ecstasy episode. One male noted that despite hearing positive reports about Crowns, "they never work for me." For him, Crowns did not produce negative effects; rather, they produced little effect at all. However, he consumed alcohol before and during the Ecstasy episode and had used Ecstasy nearly every weekend for approximately two years. The respondent's dosage rarely exceeded one-half tablet. These other factors (e.g., alcohol consumption, frequency of use, low dosage over time) might have contributed to the minimal effects.

A second brand, "Loony Tunes" also were widely available in the region during the same time period. In

contrast to Crowns, several respondents who consumed Loony Tunes described the effects as being very negative. Many respondents reported physical illness after consuming these tablets, and friends who consumed the brand in the same setting also were ill. Zombie-like effects were reported by a few respondents. These findings held for respondents who did not consume any other drug or alcohol. One respondent who was *not* ill claimed that negative effects were related to dosage: "whenever we got those 'Loony Tunes,' anybody who took two or more was violently sick. There was me and a couple of other of my friends, we only took one and a half and we were all right . . . but anybody who took more than two was sick at the time and felt sick for the next couple of days. I'm not going to go back on those Loony Tunes. Yes, I'll avoid those like the plague."

Two persons reported no negative effects after consuming Loony Tunes. One drank heavily and the other consumed amphetamine, cannabis and some alcohol during the Ecstasy episode. Although the authors are uncertain as to the source of the batch, one respondent claimed that there were two distinct batches of Loony Tunes: ". . . the ones in [Town A] were supposed to be good, but [Town B—about 20 miles from Town A] got the bad batch. A lot of boys [were] sick on them and what not." Other brands also appeared to produce the same adverse physical or psychological effects for all or most of the users within a particular friendship or drug user network in the same setting.

These results suggest that most respondents perceive labels or brands as symbols that distinguish between "good" and "bad" tablets and help the user to identify the specific types of effects (e.g., "speedy") that one should expect from a particular brand. Only a few respondents believed otherwise: ". . . it doesn't matter what the stamp is at the end of the day. You can't really judge quality control [by the stamp/label]."

Polydrug Use

In some instances, respondents believed that combining Ecstasy with other drugs produced negative outcomes. For example, a 38-year old male avoided taking magic mushrooms with Ecstasy because that combination produced panic attacks for him. Two other males experienced paranoia or delusions when consuming Ecstasy with LSD but not when consuming LSD only. The former, however, had purchased drugs from a stranger, and that source might have affected his set. Several other respondents combined Ecstasy with one or more drugs during the same episode (as opposed to using other drugs to help with the come-down phase). However, it did not appear that drug combinations were more or less likely to produce negative experiences compared with using Ecstasy only.

During the initiation into and early stages of Ecstasy use, several respondents in the present study were cautious

about consuming alcohol while using Ecstasy. However, alcohol consumption tended to increase considerably when people began to use Ecstasy more regularly, a finding that has been documented elsewhere (e.g., Hansen, Maycock & Lower 2001). The effects of combining Ecstasy and alcohol during the same episode were mixed. A respondent who was nearly always sick after consuming Ecstasy tended to ingest large amounts of alcohol, and during one negative experience, he reported to have consumed 25 pints of beer. However, during the interview he failed to make any mention at all of the possibility that alcohol might have contributed to his negative experiences. In contrast, several other respondents also had consumed large amounts of alcohol with Ecstasy, and described the effects as being quite positive.

Dosage

Several respondents limited their intake to 1/2 dosage at initiation, and a number of people recalled the first time they had consumed a whole tablet. During their most recent use of Ecstasy, most of the "experienced" users limited their dosage to two or fewer tablets (sometimes taking half dosages throughout the evening).

Higher dosages at initiation led to negative effects for some users, however, the authors' general observation was that other factors were present which might also have contributed to the negative outcome. For instance, a 23-year old female consumed two Ecstasy tablets at initiation and experienced hallucinations that she described as negative. She was "antidrug" prior to initiation and reported that a dealer had talked her into taking the drug: "I was actually lying on the bed and I didn't know where I was. I was completely and utterly gone . . . the things that I was seeing . . . like fur and all . . . like cotton wool on people's eyes and people's hands . . . just hanging on the ceiling . . . I didn't know what I was doing. I couldn't talk. . . I was like stuttering and I couldn't [make] sense of anything."

In this instance, the high dosage at initiation might have produced the effects. However, the influence of set might also be important. She was resistant until a stranger (the dealer) had given her the tablets. Moreover, she reported that friends who had consumed the drug were *not* present during her initiation, thus the influence of setting and set were possible contributors to the outcome.

DISCUSSION

Similar to findings from other studies, most of the current and former Ecstasy users in the present study reported that the effects of the drug were largely positive. However, the majority had encountered at least one negative experience while using Ecstasy. Negative effects, however, usually did not deter people from using the drug again.

Set and setting emerged as important factors in producing negative effects of Ecstasy. The effect of setting,

however, was largely due to friends or acquaintances *set*, rather than to the physical environment. Perhaps key to understanding the impact of set and setting with regard to Ecstasy use is the "communal" nature of its consumption. For the vast majority of Ecstasy users in the present study, consumption of the drug was associated with partying with friends, and part of a broader series of social and leisure rituals that included clubbing and attending after-hours parties. These behaviors are associated with achieving a *collective* good time. A sense that another user, particularly a friend or acquaintance who is part of the collective, is not having a pleasant experience may have a deleterious effect on the group as a whole.

Some evidence suggests that the drug itself might have contributed to negative experiences. For example, the majority of respondents perceived that different labels or brands of Ecstasy produce different effects. The findings suggest that this belief may be accurate in that several users who consumed a particular label within approximately the same period of time (e.g., within a period of two or three months) appeared to have experienced the same effects. Users within the same social network or wider drug culture will of course share information about various drugs, including the effects of drugs (Becker 1967). Moreover, the suggestive power of reports of drug effects has been documented in the literature (Lyerly et al. 1964). Although the extent to which this knowledge (e.g., a superior brand) might have affected users *sets* is not known, it is possible that *collective set* had more to do with user reactions than did the drug or label itself. It is difficult to determine, however, whether these effects were due to the contents of a particular brand or due to shared expectations about the effects of a particular brand.

Clearly, the data suggest that set and setting appeared to contribute to users' experiences in other ways. Overall the findings tend to support Becker's (1963: 56) earlier premise: "Enjoyment [of the drug experience] is introduced by the favorable definition of the experience that one acquires from others." One important factor in understanding the perceived effects of the drug, rests with the notion of *expectation*. As with users of alcohol (e.g., Leigh 1999), Ecstasy users have a range of pharmacological and social expectations about the effects of the drug. They expect to feel "loved up," "sociable," and "confident," and the way in which those feelings are best manifested is with users' interactions with others. The drug's capacity to deliver is realized through set and setting.

The present study found little evidence that factors such as dosage, alcohol consumption, or individual disposition, contributed consistently to negative drug experiences. That is, these factors appeared to vary considerably during users' negative experiences with Ecstasy. However, it is difficult to distinguish the effects of these factors from aspects of set and setting. For example, slightly higher than usual doses

of Ecstasy might produce negative outcomes for the user largely because the individual is fully aware of the unusual consumption pattern and expectations are not known.

Studies that examine the effects of Ecstasy are limited in that the actual content of tablets is often unknown. The present study is by no means an exception, as biochemical assays and tablet testing were not utilized. It is our view, however, that the process of labeling Ecstasy tablets serves at least three purposes. First, labels can be used as marketing devices by dealers. Second, labels serve as a guide to users who perceive that brand names can indicate a range of pharmacological effects. Third, for many of the users in this sample, knowledge of the range of brands, the perceived ability to distinguish between brands and to link nomenclature to differing effects, to have "favorites," were all part of a broader process of demonstrating maturity and familiarity with "the scene." Even among some of the younger users in the sample, nostalgic recollection of better quality Ecstasy tablets (which may or may not have been linked to varying quality of Ecstasy coming into the jurisdiction) and associated "partying" were important factors that signified that they were established participants on "the scene."

NOTES

1. This genre of literature usually acknowledges that while Ecstasy may engender feelings of empathy among users towards both acquaintances and strangers, such feelings for the most part are short-lived, and disappear by or during the comedown stage (see for example, McElrath & McEvoy 2001).

2. Ecstasy tablets can contain various licit and illicit substances so that there is a risk of polydrug use even without intention.

3. The vast majority of respondents who were interviewed during the first four months of the study resided in Belfast, the largest city in Northern Ireland. After this time, the authors narrowed the criteria for participation in the study in an attempt to interview respondents (1) from outside Belfast or (2) former users. Current users from Belfast continued to contact us but for the most part we stopped interviewing Belfast residents for a period of approximately two months. At other times, we modified the study criteria so as to avoid over representation of certain categories, e.g., middle class students.

4. The project directors chose deliberately to *not* use clubs as recruitment sources. Local folklore suggests that some paramilitary groups are closely tied to the ownership, operation or management of various clubs. Anecdotal evidence suggests that while some paramilitary groups have been linked to drug trafficking, other paramilitary groups remain opposed to both trafficking and personal use. We believed that recruitment from clubs might have gener-

ated suspicion and may have placed potential respondents and the researchers at risk.

5. All interviewers were trained during a two-week period before the study commenced. Training topics included the nature and importance of confidentiality (all staff members signed a "statement of confidentiality" and this document was framed and displayed in the main interview room), effective interviewing techniques, role playing, drug categories and effects, the local club scene (sites, locations, clientele, entrance fees, availability of alcohol, music), Ecstasy and the gay population, recruitment and sampling issues. Additional training occurred throughout the study period during discussions in staff meetings.

6. One respondent reported having great difficulties coping with the Ecstasy and despite having taken "the scariest pill" ever, he took the same brand of Ecstasy the very next night (the effects again were unpleasant but not to the degree as the previous episode).

7. Tablet testing would not necessarily resolve the issue for the user regarding the contents of tablets. In those countries where agencies are permitted to conduct tablet testing, generally the tablet is not returned to the consumer. In some instances, users might assume that a tablet with the same label as the tested tablet and from the same batch has the same type and proportion of contents. This assumption, however, has to our knowledge not been examined closely.

8. Similar to other brands, visible differences in appearance have been observed with Crowns. Specifically, the crown symbol has been described as both three- and four-pointed; speckled and not speckled. A four-pointed crown was said to contain 15 mg of amphetamine and also caffeine. A three-pointed crown examined approximately one year later contained approximately 30 mg of MDMA (Bassline 1998).

REFERENCES

- Ashton, M. 1992. The emerging ecstasy problem. In: M. Ashton (Ed.) *The Ecstasy Papers: A Collection of ISDD's Publications on the Dance Drugs Phenomenon*. London: Institute for the Study of Drug Dependence.
- Baggott, M.; Heifets, B.; Jones, R.T.; Mendelson, J.; Sferios, E. & Zehnder, J. 2000. Chemical analysis of Ecstasy pills. Research letter. *Journal of the American Medical Association* 284: 2190.
- Bassline. 1998. Do you know what you're popping? *Bassline* July 20.
- Beck J. 1990. The public health implications of MDMA use. In: S.J. Peroutka (Ed.) *Ecstasy: The Clinical, Pharmacological and Neurotoxicological Effects of the Drug MDMA*. Boston, Massachusetts: Kluwer.
- Beck, J. & Rosenbaum, M. 1994. *Pursuit of Ecstasy: The MDMA Experience*. Albany: State University of New York.
- Becker, H.S. 1967. History, culture and subjective experiences: An exploration of the social bases of drug-induced experiences. *Journal of Health and Social Behavior* 8: 163-76.
- Becker, H.S. 1963. *Outsiders: Studies in the Sociology of Deviance*. New York: Free Press.
- Betts, J. & Betts, P. 1999. *Leah Betts: The Legacy of Ecstasy*. London: Robson.
- Biernacki, P. & Waldorf, D. 1981. Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods and Research* 10: 141-63.
- Brown, C. & Osterloh, J. 1987. Multiple severe complications from recreational ingestion of MDMA (Ecstasy). *Journal of the American Medical Association* 258: 780-81.
- Calafat, A.; Stocco, P.; Mendes, F.; Simon, J.; van de Wijngaart, G.; Sureda, Ma P.; Palmer, A.; Maalsté, N. & Savatti, P. 1998. *Characteristics and Social Representation of Ecstasy in Europe*. Palma de Mallorca, Spain: IREFREA.
- Cohen, R.S. 1998. *The Love Drug: Marching to the Beat of Ecstasy*. Binghamton, New York: Haworth.
- Curran, H.V. & Travill, R.A. 1997. Mood and cognitive effects of + 3,4-methylenedioxymethamphetamine (MDMA, ecstasy): Week-end high followed by mid-week low. *Addiction* 92: 821-31.
- DanceSafe. 2000. May-July 2000 results. Available online at www.dancesafe.org/past_lab_results/results_may-july_2000.htm
- De La Torre, R.; Farre, M.; Ortuno, J.; Mas, M.; Brenneisen, R.; Roset, P.N.; Segura, J. & Cami, J. 2000. Non-linear pharmacokinetics of MDMA (Ecstasy) in humans. *British Journal of Clinical Pharmacology* 49: 104-09.
- Ellis, A.J.; Wendon, J.A.; Portmann, B. & Williams, R. 1996. Acute liver damage and ecstasy ingestion. *Gut* 38: 454-58.
- Forsyth, A.J.M. 1996. Places and patterns of drug use in the Scottish dance scene. *Addiction* 91: 511-21.
- Forsyth, A.J.M. 1995. Ecstasy and illegal drug design: A new concept in drug use. *International Journal of Drug Policy* 6: 193-209.
- Goldstein, P.J.; Lipton, D.S.; Preble, E.; Sobel, I.; Miller, T.; Abbott, W.; Paige, W. & Franklin, S. 1984. The marketing of street heroin in New York City. *Journal of Drug Issues* Summer: 553-66.
- Hammersley, R.; Ditton, J.; Smith, I. & Short, E. 1999. Patterns of Ecstasy use by drug users. *British Journal of Criminology* 39: 625-47.
- Hansen, D.; Maycock, B. & Lower, T. 2001. Weddings, parties, anything ... a qualitative analysis of ecstasy use in Perth, Western Australia. *International Journal of Drug Policy* 12: 181-99.
- Henderson, S. 1997. *Ecstasy: Case Unsolved*. London: Pandora.
- Henry, J.A. 1992. Ecstasy and the dance of death. *British Medical Journal* 305: 5-6.
- Jansen, K.L.R. 1997. Adverse psychological effects associated with the use of Ecstasy (MDMA) and their treatment. In: N. Saunders (Ed.) *Ecstasy Reconsidered*. London: Neal's Yard.
- Leigh, B. 1999. Thinking, feeling and drinking: Alcohol expectancies and alcohol use. In: S. Peele & M. Grant (Eds.) *Alcohol and Pleasure: A Health Perspective*. Philadelphia, Pennsylvania: Bruner/Mazel.
- Lyerly, S.; Ross, S.; Krugman, A. & Clyde, D. 1964. Drugs and placebos: The effects of instructions upon performance and mood under amphetamine sulfate and chloral hydrate. *Journal of Abnormal and Social Psychology* 68: 321-27.
- Maxwell, D.L.; Polkey, M.I. & Henry, J.A. 1993. Hyponatraemia and catatonic stupor after taking "ecstasy." *British Medical Journal* 307: 1399.
- McCann, U.D.; Slate, S.O. & Ricaurte, G.A. 1996. Adverse reactions with 3,4-Methylenedioxymethamphetamine (MDMA; Ecstasy). *Drug Safety* 15: 107-15.
- McCann, U.D.; Szabo, Z.; Scheffel, U.; Dannals, R.F. & Ricaurte, G.A. 1998. Positron emission tomographic evidence of toxic effect of MDMA ("Ecstasy") on brain serotonin neurons in human beings. *Lancet* 352: 1433-37.
- McElhatton, P.R.; Bateman, D.N.; Evans, C.; Pug, K.R. & Thomas, S.H.L. 1999. Congenital anomalies after prenatal ecstasy exposure. *Lancet* 354: 1441-442.

- McElrath, K. & McEvoy, K. 2001. Fact, fiction and function: Mythmaking and the social construction of Ecstasy use. *Substance Use and Misuse* 36: 1-22.
- McElrath, K. & McEvoy, K. 1999. *Ecstasy Use in Northern Ireland*. Belfast: Northern Ireland Statistics and Research Agency.
- McGuire, P. & Fahy, T. 1991. Chronic paranoid psychosis after misuse of MDMA ("ecstasy"). *British Medical Journal* 302: 697.
- Measham, F., Aldridge, J. & Parket, H. 2001. *Dancing on Drugs: Risk, Health and Hedonism in the British Club Scene*. London: Free Association.
- Newcombe, R. 1992. A researcher reports from the rave. In: M. Ashton (Ed.) *The Ecstasy Papers: A Collection of ISDD's Publications on the Dance Drugs Phenomenon*. London: Institute for the Study of Drug Dependence.
- O'Connor, B. 1994. Hazards associated with the recreational drug Ecstasy. *British Journal of Hospital Medicine* 52: 507-14.
- Parrott, A.C. & Lasky, J. 1998. Ecstasy (MDMA) effects upon mood and cognition: Before, during and after a Saturday night dance. *Psychopharmacology* 139: 261-68.
- Saunders, N. 1995. *Ecstasy and the Dance Culture*. Exeter, U.K.: Wheatons.
- Schifano, F. 1991. Chronic atypical psychosis associated with MDMA ("ecstasy") abuse [letter]. *Lancet* 338: 1335.
- Schifano, F.; Di Furia, L.; Forza, G.; Minicuci, N. & Bricolo, R. 1998. MDMA (ecstasy) consumption in the context of polydrug abuse: A report on 150 patients. *Drug and Alcohol Dependence* 52: 85-90.
- Sherlock, K.; Wolff, K.; Hay, A.W.M. & Conner, M. 1999. Analysis of illicit ecstasy tablets: Implications for clinical management in the accident and emergency department. *Journal of Accident and Emergency Medicine* 16: 194-97.
- Shewan, D.; Dalgarno, P. & King, L.A. 1996. Ecstasy and neuro-degeneration: ... such as Ketamine [letter]. *British Medical Journal* 313: 424.
- Shewan, D.; Dalgarno, P. & Reith, G. 2000. Perceived risk and risk reduction among ecstasy users: The role of drug, set, and setting. *International Journal of Drug Policy* 10: 431-53.
- Solowij, N.; Hall, W. & Lee, N. 1992. Recreational MDMA use in Sydney: A profile of Ecstasy users and their experiences with the drug. *British Journal of Addiction* 87: 1161-72.
- Spruit, I.P. 1997. *Ecstasy in the Netherlands: A Summary of the Results of Six Projects*. Rijswijk, Netherlands: I.P. Spruit.
- Topp, L.; Hando, J.; Dillon, P.; Roche, A. & Solowij, N. 1999. Ecstasy use in Australia: Patterns of use and associated harm. *Drug and Alcohol Dependence* 55: 105-15.
- van de Wijngaart, G.F.; Braam, R.V.; de Bruin, D.E.; Fris, M.; Maalsté, N. J. M. & Verbraeck, H. T. 1999. Ecstasy use at large-scale dance events in the Netherlands. *Journal of Drug Issues* 29: 679-701.
- Weil, A. 1972. *The Natural Mind*. New York: Houghton Mifflin.
- Williams, H.; Meagher, D. & Galligan, P. 1993. M.D.M.A. ("Ecstasy"); A case of possible drug-induced psychosis. *Irish Journal of Medical Science* 162: 43-44.
- Winstock, A.R. & King, L.A. 1996. Tablets often contain substances in addition to, or instead of, ecstasy [letter]. *British Medical Journal* 313: 423-24.
- Wolff, K.; Hay, A.W.M.; Sherlock, K. & Conner, M. 1995. Contents of "ecstasy." *Lancet* 346: 1100-101.
- Zinberg, N.E. 1984. *Drug, Set, and Setting*. New Haven, Connecticut: Yale University.